CAN

Cooperative Agreement Notice (CAN) for Constellation-X Architecture Studies

- Objective:
  - Develop innovative mission concepts that meet Constellation-X requirements and minimize total mission costs
- Structure:
  - Each recipient is expected to share at least 50% of the cost of this effort.
  - NASA will contribute up to $110K per cooperative agreement
  - Up to two cooperative agreements will be awarded
- Duration:
  - 150 days for mission architecture study
  - Intermediate results due after 60 days

Architecture Study Approach

Approach:

- Create one or more mission concepts that meet the overall mission requirements
- Identify unproven technologies that may be required to produce, launch and operate this conceptual design. Create Technology Roadmaps.
  - Roadmaps NOT required for microcalorimeter or equivalent, CCD/Grating or equivalent, Hard X-ray Telescope, and SXT optics
- Minimize the end-to-end mission costs including technology development, spacecraft, instrument accommodations, mission integration, launch and operations.
- Create ROM schedules and costs for the life cycle of the Constellation-X
- Document this information in annotated briefing charts and a written report

Requirements and Assumptions for Architecture Studies

- Top Level Mission Requirements and Assumptions
  - Science Requirements
  - Instrument Configuration Information and Options
  - Derived Spacecraft Requirements
- Mission Schedule
  - Phase C/D to begin early FY 2004
  - All Constellation-X satellites launched and operational by end of FY 2008
- Mission Cost
  - Overall mission cost must be minimized
  - Total mission cost, not including Government Furnished Equipment (GFE), should be on the order of $300M (in FY98 dollars) or less

ROM Cost Estimates

- Estimate total mission cost, Phase A through Phase E, including
  - Mission studies, preliminary design and technology development
  - Spacecraft, instrument assembly structures/optical benches, instrument coolers/radiators
  - Integration and Test
  - Launch Vehicle
  - Ground System and Mission Operations
- Assume Government Furnished Equipment for purposes of this study, and do NOT cost
  - All technology development and flight production for SXT Optic Subassemblies, Microcalorimeter or equivalent, Grating/CCD or equivalent, HXT Optics, HXT Detector
  - Science Operations

ROM Cost Estimates

- Top level WBS format will be provided in CAN
  - 1.0 Systems and Management
  - 2.0 Technology Development
  - 3.0 Instrument Module
  - 4.0 Spacecraft
  - 5.0 Integration and Test
  - 6.0 Launch Operations (includes cost of launch vehicle)
  - 7.0 Mission Operations

Proposal Evaluation Criteria

Proposals will be evaluated with respect to the following criteria:

- The degree to which the offeror appears to understand the work to be performed as evidenced by technical and programmatic discussion in the proposal.
- The degree to which the offeror can be expected to offer innovative concepts consistent with minimizing overall mission cost.
- The degree of certainty to which the value (cost/price) of the offeror's matching contribution can be expected to meet the Government's contribution of $110,000.
- The importance of the offeror's matching contribution (s) to the Constellation X-ray Mission architecture definition if a portion of such contributions are other than labor.
- Experience, expertise, and level of involvement of key personnel during the contemplated study.
- Overall expertise and relevant experience of the offeror's team.

CAN Schedule

March 4	Pre-proposal Workshop at GSFC
March 13	CAN Release
March 27	Notification of Intention to Propose
April 13	Proposal Receipt
April 24	Selection and Award of Cooperative Agreements
Week of June 22	Mission Architecture Concept Intermediate Reviews
September 24	Cooperative Agreement Study Results Due

Summary

- Mission studies performed to date by GSFC/SAO team show the mission is feasible
- Costs ROMs so far are in the ball park, on the high side
  - Need refinement
- CAN mission architecture studies will provide industry opportunity to develop innovative concepts
  - Emphasis on cost reduction